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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,032	12/14/2001	Yasuhiko Yamanaka	61352-012	6792
20277	7590	07/14/2004	EXAMINER	
MCDERMOTT WILL & EMERY LLP			DUONG, THOI V	
600 13TH STREET, N.W.			ART UNIT	
WASHINGTON, DC 20005-3096			PAPER NUMBER	
			2871	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/018,032

Applicant(s)

YAMANAKA ET AL.

Examiner

Thoi V Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-84 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) 24-27, 32, 33 and 71-84 ~~is/are~~ withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 10-13, 16-18, 20-23, 28-31, 34-39, 42-44, 46-52, 55-57 and 59-70 ~~is/are~~ rejected.
- 7) ☒ Claim(s) 4, 5, 9, 14, 15, 19, 40, 41, 45, 53, 54 and 58 ~~is/are~~ objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0404</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Amendment filed April 27, 2004.

Accordingly, claims 1, 2, 22, 28, 30, 34-37, 63, and 66-70 were amended, and claims 24-27, 32, 33 and 71-84 were withdrawn. Currently, claims 1-23, 28-31, and 34-70 are considered in this application.

Response to Arguments

2. Applicant's arguments with respect to claims 1-23, 28-31 and 34-70 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 6-8, 10-13, 16-18, 20-23, 36-39, 42-44, 46-52, 55-57 and 59-70 are rejected under 35 U.S.C. 102(b) as being anticipated by Taniguchi et al. (USPN 6,099,134).

Re claims 1, 2, 10, 20, 22, 36, 37, 63 and 65-70, as shown in Figs. 6A and 6B, Taniguchi et al. disclose a backlighting unit for a liquid crystal display device (col. 2, lines 59-67) comprising:

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light emitting means 1, 2 for emitting light; and

an optical member 11 (a reflector), which is placed on a light path of the emitted light, in which an optical characteristic in a direction in which displayed information is observed varies in a plane, at least part of convex-shape dots 16 (optical action centers) at which the optical characteristic has a local maximum value are arranged regularly in the plane according to a predetermined rule (col. 3, line 16 through col. 4, line 7) since dot pattern is repeated arranged in each region in Fig. 6B, and arrangements of the optical action centers on arbitrary parallel straight lines in the plane do not have the same regularity as shown in Fig. 6B.

As also shown in Figs. 6A and 6B, the optical member comprising a plurality of dot regions formed in matrix in the plane, wherein the optical characteristic is the same (reproducible reflection characteristic) in all dot regions since the dot regions have a same pattern.

Re claims 11, 23, 47 and 64, the optical action centers are repeatedly arranged in matrix (Fig. 6B).

Re claim 38 and 51, the optical characteristic varies substantially discontinuously at a boundary between a minute region having the optical action center 16 as a center and the other region, and has substantially the same value in each region (Figs. 6B and 27B).

Re claims 48-50 and 60-62, the optical characteristic is a reflectance or a refractive index or a transmittance (col. 2, line 64 through col. 3, line 13); and

Re claims 6, 16, 42, 46, 55 and 59, at least part of the optical action centers are arranged so as to have positional relationship similar to arrangement obtained by symmetric transformation of a plurality of points regularly arranged in a concentric shape on an arbitrary two-dimensional coordinate system as shown in Fig. 7.

Re claims 3, 7, 8, 13, 17, 18, 39, 43, 44, 52, 56 and 57, as also shown in Fig. 7, by making a proper connection, at least part of the dots (convex portions) may be arranged in a substantially shape such as spiral shape or radial shape or ellipsoidal radial shape or ellipsoidal spiral shape.

Finally, re claims 12 and 21, as to the product-by-process limitation "wherein the concave portions or the convex portions of the concave/convex shape are formed through a process including mask exposure and development, the mask exposure using a photomask including light-blocking regions or light-transmitting regions at least part of which are arranged according to a predetermined rule" of those claims, it has been recognized that "Even through product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process". *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 6-8, 10-13, 16-18, 20-23, 28-31, 34-37, 39, 42-44, 47, 48, 52, 55-57, 60, and 63-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. (USPN 6,522,375 B1) in view of Taniguchi et al. (USPN 6,099,134).

Re claims 1, 2, 10, 20, 22, 28, 30, 63, 65 and 66 as shown in Figs. 2-4, Jang et al. discloses a reflective liquid crystal display panel comprising:

a liquid crystal layer 144 and a reflector 118 placed substantially in parallel with the liquid crystal layer, in which an ambient light is reflected externally by the reflector through the liquid crystal layer, and the liquid crystal layer can be modulated by an externally applied voltage (col. 4, lines 4-33),

wherein the reflector 118 has a plurality of unit regions 118a, 118b having a concave/convex shape in a surface thereof, at least part of concave portions or convex portions of the concave/convex shape are arranged according to a predetermined rule and concave/convex shapes of arbitrary parallel straight-line cross sections do not have the same regularity (col. 4, line 37 through col. 5, line 8).

Re claims 34 and 35, since the liquid crystal layer can be modulated by an externally applied voltage, it is obvious that a driving means is to be provided to drive the reflective liquid crystal display panel.

Re claims 11, 23, 47 and 64, the concave portions or the convex portions of the concave/convex shape are repeatedly arranged in matrix.

Re claims 48 and 60, the optical characteristic is a reflectance.

Re claims 29 and 31, the reflector 118 includes a reflecting film on a substrate 112, for reflecting the ambient light (col. 1, lines 24-31), an opposed substrate 132 is placed opposite to the reflector with the liquid crystal layer 144 interposed therebetween, and an electrode for modulating the liquid crystal layer is comprised of the reflecting film and a common electrode 138 formed on an inner surface of the opposed substrate 132.

Re claims 36, 37 and 67-70, as shown in Figs. 5 and 6, Jang et al. discloses a display comprising: display means for displaying predetermined information (see Fig. 2); and an optical member 218 placed on a light path of light from a light source for displaying the information, in which an optical characteristic in a direction in which the displayed information is observed varies in a plane, at least part of optical action centers 218e at which the optical characteristic has a local maximum value (col. 5, lines 52-57) are arranged in the plane according to a predetermined rule, and arrangements of the optical action centers on arbitrary parallel straight lines III-III in the plane do not have the same regularity.

Re claims 3, 6-8, 13, 16-18, 39, 42-44, 52 and 55-57, as shown in Fig. 5, by making a proper connection, at least part of the convex portions 218e, 218d may be arranged in a substantially shape such as spiral shape or radial shape or ellipsoidal radial shape or ellipsoidal spiral shape.

Finally, re claims 12 and 21, as to the product-by-process limitation "wherein the concave portions or the convex portions of the concave/convex shape are formed through a process including mask exposure and development, the mask exposure using

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a photomask including light-blocking regions or light-transmitting regions at least part of which are arranged according to a predetermined rule” of those claims, it has been recognized that “Even through product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process”. *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985). See also MPEP 2113.

Jang et al. discloses a reflective liquid crystal display panel that is basically the same as that recited in claims 1, 2, 22, 28, 30, 36, 37, 63, 65 and 66 except that the concave/convex shapes are not arranged regularly according to a predetermined rule so as to have a reproducible reflection characteristics.

As shown in Figs. 6A and 6B, Taniguchi et al. discloses a light guide plate a reflector (optical member) provided with concave/convex-shaped dots (col. 3, lines 1-14) which are arranged according to a predetermined rule (col. 3, line 58 through col. 4, lines 7). Fig. 6B shows nine square regions and the dots have a repeated pattern in each region; accordingly the dots are arranged regularly so as to have a reproducible reflection characteristic.

Taniguchi et al. also discloses that the optical member can be applied to implementation of illuminating sheets in general which ensure luminance distribution of enhanced uniformity (col. 24, lines 51-57).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the reflective LCD panel of Jang et al. with the teaching of Taniguchi et al. by forming a reflector having concave/convex portions arranged regularly according to a predetermined rule so as to have a reproducible reflection characteristics to ensure luminance distribution of enhanced uniformity (col. 24, lines 51-57).

Allowable Subject Matter

7. Claims 4, 5, 9, 14, 15, 19, 40, 41, 45, 53, 54 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: none of the prior art of record discloses, in combination with other limitations as claimed, concave/convex portions being arranged such that a radius of a coordinate from an origin is a square root of n as a natural number and a phase angle is $137.5 \text{ degrees} \times n$ on the arbitrary two-dimensional coordinate system.

The most relevant reference, USPN 6,099,134 of Taniguchi et al., fails to disclose or suggest such arrangement of the optical action centers. As shown in Fig. 7, the reference of Taniguchi et al. only discloses a distribution state of the dots (or convex portions) having radii R according to the formula (1) in column 4, line 20, where the radial distribution function $g(R)$ is equivalent to the sum of the dot numbers normalized or standardized with the distances R (col. 4, lines 8-29).

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

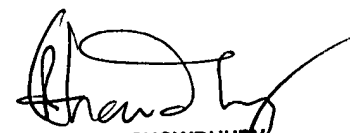
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong

07/11/2004



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER